UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
SR-6J

April 4, 1997
DCL097008

COPY

Mr. Joseph Benedict
Forest Preserve District of DuPage County
P.O. Box 2339
Glen Ellyn, IL 60138

RE: Comments on the Leachate Collection System Expedited Final Design

Dear Mr. Benedict:

Thank you for submittal of the document entitled *Leachate Collection System Expedited Final Design, Blackwell Forest Preserve Landfill*, dated February 1997. The United States Environmental Protection Agency (USEPA) has reviewed this document and solicited comments from the Illinois Environmental Protection Agency (IEPA). The following is a summary of these general and specific comments.

General

The design should include calculations supporting the selection of pumps for the leachate extraction wells and the lift station, drawings and details for the compressor station, including the foundation slab, and calculations for sizing the compressor. This information can be placed in an appendix.

The construction specifications (see Section 01500 in Appendix B), state that the work to be performed includes installation of silt fences (see Section 01010 in Appendix B) to control soil erosion during construction. The locations of the silt fences are not shown on the drawing sheets, and the cost of the silt fences does not appear to be included in the capital cost estimate in Appendix C.

Specific

Section 2, Leachate Control, General, Page 5, Paragraph 3, Last Sentence:

The text states that the criteria for implementing an active gas extraction system will be outlined in the operation and maintenance (O&M) plan. Based on the design document, it appears that the system will be designed for active landfill gas extraction but will begin with passive extraction.

However, there is no discussion of the criteria that will be used to determine if the system is to be transitioned from passive to active. Although past studies have indicated that gas may not be a significant problem, typically, an active system is designed, installed, optimized and run for a period of time. During this operation, real data is compared to pre-determined criteria to determine if and when the system can be down-graded from active to passive. The criteria for implementing the active gas extraction system is an important component of the remedial design and should be clearly specified (i.e., the type and frequency of active and passive monitoring, the required criteria/thresholds for starting and stopping active/passive gas extraction, the criteria to optimize and measure the effectiveness of the system, operational considerations like whether the system will be pulsed versus continuous operation etc.).

Section 2, Conveyance Pipe System, Page 8, Paragraph 3:

This paragraph states that the existing pipe connecting MH3 to MH2 will be disconnected and abandoned in place. Please clarify that this is indeed the leachate pipe that passes under the north part of the landfill and discharged into the woods. If not, please discuss the plans for this leachate pipe in detail.

Section 2, Conveyance Pipe System, Page 9, Bullet 5 and Drawing Sheet D2:

The text states that control wires may be included in the pipe trench and the pipe trench details in Detail 5 on Drawing Sheet D2 show lift station and well pump control wires in the trench. The purpose of the control wires in the trench is not clear (the pumps being used are identified as pneumatic pumps that do not require electrical control wires). Although this is a very minor comment, it may be more accurate to revise the term "control wires" to indicate that the pipe trench will actually carry wires for transmitting leachate flow information for individual wells to the compressor station control building and not to imply that they control down well pumps.

Section 2, Final Cover Restoration, Page 10, Paragraph 1, Lines 2 through 4:

This section indicates that the excavated refuse will be segregated and tested for hazardous waste characteristics using toxicity characteristics leaching procedure (TCLP) protocols if screening of the refuse with a photoionization detector (PID) produces a reading greater than 100 parts per million. The rationale for choosing only the VOCs detectable using 11.7eV PID for this waste determination procedure does not appear complete and should be revisited (i.e., the refuse may have inorganic contaminants that may exceed TCLP threshold values).

Section 2, Driplegs, Page 10, Paragraph 2:

The second sentence discusses how the inlet and outlet pipes will control the liquid level in the trap. The design may want to consider placing the gas header inlet pipe at a higher invert elevation than the condensate inlet pipe. In the unlikely event that liquids accumulate due to flow restriction, an additional safety factor may protect liquids from back flowing into the gas system.

It appears that the major difference between the active and passive system is the addition/operation of a blower and the pressure affect this blower places upon the gas collection system. Is it accurate to state that the driplegs would actually be "negative pressure" only when the blower is operating (placing a vacuum on the dripleg, leachate in the trap, the header pipe system, extending to the wellhead and down well)? If so, what are the operating vacuum pressures, how were they derived and where and how often will they be measured in the system?

Design specifications for the discharge outflow for the active system at the blower should be presented (height of vent with regard to breathing zone, flaring apparatus construction and safety equipment, etc).

Section 2, Lift Station, Page 11, Paragraph 1:

The lift station will include installation "of" a surface vault...

Paragraph 3:

An interstitial conductivity probe is proposed for monitoring moisture in the space between the double walls of the leachate holding tank and it is further stated that the LCS will be shut down if moisture is detected. Please clarify whether a specific moisture level or any moisture in the space between the double walls will cause shutdown of the LCS. Also, verify that the tank and connecting pipe apparatus meet all Resource Conservation and Recovery Act (RCRA) Underground Storage Tank (UST) requirements.

Section 3, Draft Operations & Maintenance Plan, Page 18, Paragraph 2:

The text lists items to be included in the O&M plan. This plan should also include a description of active gas extraction system activities.

Section 4, Project Schedule and Personnel, Page 20, Paragraph 2:

As you know, EPA seeks external comments from contractors and IEPA in addition to our internal review. We have previously negotiated specific turn-around times for these reviews, so our ability to change the required review time is limited. EPA will make every attempt to accommodate the request for accelerated review on the cap design deliverables. However, for planning purposes, we should assume a 45-day review time frame.

Page 21, Project Personnel, Paragraph 1 and Figure 3:

The EPA Project Manager can be identified as Michael Bellot, phone number (312) 353-6425, fax number (312) 353-5541.

Figure 1:

The schedule should identify the O&M plan as a deliverable (see Section 3, Page 18) and the schedule should be revised to indicate a 45-day EPA review time (with the understanding that EPA will endeavor to expedite the cap design review).

Drawing Sheet D2, Detail 1:

This detail includes a table showing the schedule for well construction. The borehole depths and/or the well pipe lengths presented in this table appear incorrect. For example, for well EW01, the existing surface and base grade elevations are listed as 753.45 and 709.45 feet, respectively, which indicates a borehole depth of 44 feet (753.45 - 709.45 = 44). However, the table lists the borehole depth as 46.0 feet. Please check throughout the table.

Drawing Sheet D3, Detail 1:

The size, material, and function of the manual tank-truck loadout pipe should be added to the drawing sheet. In addition, Detail 1 shows a pneumatic pump used to pump leachate from the lift station. However, the design does not include a bubbler line or other device to control the operation of the leachate pump. The design of the lift station should be revised to include a means of controlling pump operations based on the level of the leachate in the lift station.

Drawing Sheet D3, Details 3 and 4:

Details 3 and 4 show that the gas header pipe is connected to the dripleg riser pipe by a horizontal pipe. Replacing the horizontal pipe with a pipe sloping downward from the gas header pipe to the riser dripleg pipe will result in more efficient removal of condensate from the gas header pipe. This change should be considered for the NPD design.

Detail 4 shows that the gas header pipe from the well field is connected to the dripleg cleanout riser pipe in a manner that allows the condensate from the gas header pipe to flow to the dripleg. The piping arrangement shown in Detail 4 will remove the large condensate droplets collected in the pipe but will not remove the lighter condensate drops suspended in the gas in the pipe. Condensate collected in the pipe and some of the condensate drops suspended in the gas in the pipe may both be removed if the dripleg design is modified so that the gas header pipe from the well field is connected to the future blower pipe (i.e., an additional light condensate "drop out"). This connection can be made using an elbow such that the invert elevation of the blower pipe is higher than the crown elevation of the gas header pipe. This modification to the dripleg design should be considered to maximize the removal of condensate from the gas.

Drawing Sheet D4, Details 1 and 3:

Details 1 and 3 show the plan view and side profile view of the leachate holding tank,

respectively. Both details show a 2-inch, Schedule 80, polyvinyl chloride, interstitial monitoring riser with a leak detection probe and controls. An additional detail of the monitoring riser and probe between the double walls of the tank should be provided to show where the probe and controls will be located.

In addition, Note 1 in Detail 1 indicates that the condensate collected by the air compressor dewatering system will be piped directly to the leachate holding tank. However, none of the drawings shows the details needed for connecting the condensate pipe to the leachate holding tank. All details needed for connecting the air compressor dewatering system to the leachate holding tank should be shown in the drawings.

Drawing Sheet D4, Detail 2:

This detail shows an end-profile view of the leachate holding tank. The detail should specify the material and capacity of the hold-down strap.

Drawing Sheet D4, Details 3 and 5:

These details show a 6-inch, high-density polyethylene leak detection riser. However, the function of this riser and whether it affects LCS operation are not explained anywhere in the design. This and other information regarding corrective action in the event that leachate is detected in the riser should be provided. In addition, installing a leak detection cable inside the riser and connecting the cable to the control system for shutting down the LCS in the event of a leak should be considered for the design.

Section 01010, Page 01010-1, Item 1.02.A.2:

The phrase "and with associated cleanouts" appears to be missing necessary wording. This phrase should be checked and corrected.

Section 01010, Page 01010-3, Item 1.03.C:

No LCS surveying cost is included in the capital cost estimate in Appendix C.

Section 15122, Page 15122-4, Item 2.01.A.1.a:

This item requires sizing the compressor to handle 14 extraction well pumps, including the lift station pump. As discussed in General Comment 1, calculations for sizing the compressor should be provided in an appendix to the design.

Section 15162, Page 15162-3, Item 3.01.A:

This item states that leachate well pumps will be installed in accordance with manufacturer

instructions. A brief, general description of how and where the pumps will be installed should be provided because this information is not provided in the drawings.

Section 15177, Page 15177-3, Item 3.02.C:

This item states that the leachate holding tank level indicators and interstitial monitoring probe will be installed in accordance with Section 15481, Compressed Air System. However, Section 15481 is missing from the specifications. This section should be provided for review.

Appendix C, Capital Cost Estimate

Table:

The cost estimate in this table should be revised to include the costs of erosion control (silt fences) and LCS surveying. The cost estimate should also include costs for engineering construction management, quality assurance (QA) and quality control (QC) testing, waste characterization testing, contingency, legal, and permitting needs. In addition, costs for leachate extraction well installation should be included.

Appendix F, Construction Quality Assurance Plan

Sections 3 and 4, Pages 3-1 through 3-5 and 4-1 through 4-5:

Sections 3 and 4 discuss project personnel responsibilities and construction QA activities, respectively. These sections indicate that field QC testing for in-place density and QA activities will both be conducted by the same party, Montgomery Watson. QC and QA activities should be performed independently from each other to verify the quality of the constructed project. Sections 3 and 4 should be revised to address this issue.

Section 4.4.7, Page 4-5, Paragraph 2:

The text states that the leachate holding tank will be pressure-tested at the factory and again on site before its installation. It would be appropriate to also test the tank for leaks after its installation and connection to the leachate conveyance pipe from NPD DL02.

Appendix G, Quality Assurance Project Plan - Addendum No. 1

Table G-3:

This table summarizes data-generating activities and associated quality objectives. The analytical parameters for waste characterization are typically disposal facility-specific. Therefore, a footnote should be added to the table indicating that additional testing may be needed depending on the facility selected for waste disposal. Alternatively, if the disposal facility is already known, a

footnote should be added indicating that the analytical parameters specified are required by that facility.

Appendix B, Section 02505:

Throughout this section, the word "course" should be corrected to "coarse."

Appendix B, Section 02733, Page 02733-2, Item 2.01.B.2:

The word "list" should be corrected to "lift."

Appendix B, Section 15162, Page 15162-2, Item 2.01.A.1:

On the third line, the word "approval" should be replaced with "approved."

Appendix D, Page 1, Assumption 4:

The term "saturated soil" should be replaced with "dry soil."

Appendix D, Page 2, Conclusion 4:

The phrase "Factor is safety" should be corrected to "Factor of Safety."

Appendix F, Section 3.4.2, Page 3-5, Bullet 3:

The word "of" should be inserted between "demonstration" and "bonding."

Appendix F, Section 4.4.8, Page 4-5, Paragraph 3:

On the fourth line, the word "manufactures'" should be corrected to "manufacturers'."

If you have questions regarding these comments, or would like to discuss them in greater detail, please do not hesitate to contact me at (312) 353-6425.

Sincerely,

Michael E. Bellot
EPA Remedial Project Manager

cc: Rick Lanham, IEPA
Jerry Hartwig, FPD
Peter Vagt, MW
Kostas Dovantzis, PRC